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The Role of Presentation Format on Decision-makers' Behaviour in Accounting

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Abstract

The recent increase in researching presentation format area is resulting by the increase in awareness on the importance of presentation format on decision-makers' behaviour. This paper presents a synthesis of prior research on presentation format in the accounting literature which could be used as bases and references for future research. It reviews and evaluates existing accounting literature that examines the linkages of presentation format on decision-makers' behaviour. Finally, future research opportunities in this area are made.

Keywords: Presentation format, Decision-makers, Decision-making

1. Introduction

Decision-making is a cognitive process that leads to the selection of a course of action among alternatives that produces a decision outcome (Libby, 1981; Cloyd, 1995). It involves three central stages: input; processing and output (Libby and Lewis, 1977). Since decision-making process involves reliance on the nature and content of information being inputted and how the information is being presented, there is a possibility that decision makers would not be able to obtain information due to human information processing limitations (Cloyd, 1995; Roberts, 2002). This view is supported in the psychological studies that suggested:

Humans are portrayed as intellectual cripples, limited in their capacity to think, and biased by cognitive processes that interfere with rational decision-making. They are oversensitive to variables that are not included in normative theories and under sensitive to variables that are. They become more variable when given more information and increase their confidence in the accuracy of their judgments when they should not (Ebbesen and Konecni, 1980, p 21)).

In general, there are few limitations related to cognitive information processing. First, decision-makers mentally acquire knowledge of similar or related information items or situations and tend to overlook information that is placed out of the normal situation (Chi et al., 1981; Hirst and Hopkins, 1998; Maines and McDaniel, 2000; Hodge et al. 2004)). Decision-makers tend to assume that a particular interest or practice is being treated similarly at all times. For example, Hirst and Hopkins (1998) found that a fundamental variation in the way accounting information is presented can have a predictable impact on analysts' stock price estimates. They found that analysts only include an information item in their valuation when it is placed in a normal situation unless they had acquired it through accidental discovery.

Secondly, studies have found that decision-makers can be influenced by the placement of information (Hopkins, 1996; Hirst and Hopkins, 1998; Maines and McDaniel, 2000; Libby et al., 2002; Hodge and Pronk., 2006). These studies suggest that decision-makers rely on a "placement signal" – the placement of information to determine whether the information item should be included in their valuation. Some studies provide evidence that placement signal affects both non-professional decision-makers (Maines and McDaniel, 2000) and professional decision-makers (Hirst and Hopkins, 1998).

Thirdly, studies have shown that decision-makers generally incur different degrees of cognitive costs in situations where they are required to select an alternative from similar functions (Russo, 1977; Fischoff et al., 1978; Nisbett et al., 1981; Hackenbrack, 1992; Hoffman and Patton, 1997; Shelton, 1999). For example, Hodge et al. (2004) found that participants take longer time to complete an investment decision task when they are given two firms that have adopted different accounting models. This is because they need to place the two firms on par before making investment decisions.

Fourthly, search behaviour could also affect how decision-makers process information (Bouwman, 1982; Bouwman et al., 1995; Hunton and McEwen, 1997; Maines and McDaniel, 2000; Hodge et al., 2004). These studies suggest that professional decision-makers practice directive search, in which they search directly for a specific information item in the financial statement, regardless of the location of the information item. On the other hand, non-professional decision-makers often practice sequential search, in which they tend to search through all available information in a relatively sequential manner. However, as they gain more experience in the decision environment, they progressively develop more sophisticated information search strategies and become more directive in their search patterns (Yates, 1990).

Finally, decision-makers are also influenced by the classification of an information item (Petroni and Wahlen, 1995; Lipe, 1998; Hirst and Hopkins, 1998; Dhaliwal et al., 1999; Maines and McDaniel, 2000). They tend to provide more weight to an information item that they believe is the main or core activity compared to an item which is not related to core activity. For example, Hirst and Hopkins (1998) demonstrated that analysts often fail to acquire unrealised gain and loss information for marketable securities of an electronic manufacturing firm when this information is presented in the balance sheet. However, they do acquire and use this information when it is presented in the income statement. In contrast, Petroni and Wahlen (1995) and Maines and McDaniel's (2000) studies found that professionals acquire such information in the balance sheet when valuing a financial services firm.

Once the limits of human information processing were established, researchers then explored ways to overcome these limitations. There are now many ways available to assist decision-making (Libby, 1981; Libby and Lewis, 1982; Libby et al., 2002). However, before determining which way is the best, there is a need to identify the source of deficiency in decision-making (Bonner, 1999). The source of deficiency can be caused by two main sources: the decision maker or the task. If the deficiency is caused by the decision maker, proper training may be beneficial to instil skills and knowledge in performing the task (Roberts, 2002). If the source of deficiency is the task, then changing the structure of the task may alleviate some of the problem.

One potential solution that addresses the limitations of human information processing and improves decision-making is the use of presentation format. The following section presents the relevance of presentation format to decision-makers. Section 3 presents a review and evaluation of the effect of presentation format on decision-makers behaviour. Section 4 presents the view of reliance on presentation format. Section 5 provides the theories used in the presentation format literature. In the final section, future research directions are provided.

2. Relevance of presentation format

Numerous studies have suggested the use of presentation format to minimise human information processing limitations (Chervany and Dickson, 1974; DeSanctis and Jarvenpaa, 1989; Davis et al., 1989; Iselin, 1989; Hard and Vanecek, 1991; Stone and Schkade, 1991; Frownfelter-Lohrke, 1998; Stocks and Tuttle, 1998; Dull et al., 2003). These studies

suggest that presentation format could overcome the effect of increased information (Roberts, 2002) and also improve ways of thinking (Schick et al., 1990). Moreover, the use of presentation format could also assist decision-makers to be aware of non-eminent information (Hodge et al., 2004).

Presentation format has been used to support decision-making processes and help decision-makers overcome human information processing limitations (Libby and Lewis, 1982; Maines, 1995; Brown and Eining, 1996; Hodge, 2001; Hodge et al., 2004). It could assist decision-makers in processing a large quantity of data and reduces cognitive effort (Brown and Eining, 1996; Rose, 2002). Presentation format studies are based on cognitive science literature which contributes to the understanding of the decision process (Libby and Lewis, 1982; Dillard, 1984). The evolvement and the use of presentation format is particularly encouraging although research relating to decision-makers' behaviour from an accounting perspective has not been extensively explored (Maines, 1995; Hopwood, 1996; Debreceny and Gray, 2001; Wu and Vasarhelyi, 2004).

Early accounting behavioural studies tended to disregard investigating presentation format as researchers were more focused on examining the accounting content of financial information and ignored the examination of the way information is presented to users (Hopwood, 1996). The lack of early studies on presentation format could be attributed to normative theories of choice that suggest a decision should not change just because the way a problem is described has a minor variation (Maines, 1995). That is, the way information is presented should not affect the way decision-makers process the information since decision success is dependent on decision-makers' cognitive processes. Yet, Libby and Lewis (1982) argue that failure of this principle to hold across different representations of the same problem still exists. This is consistent with Slovic et al. (1990) who suggest that judgment and choices are actively constructed. If decision-makers' reported preferences are constructed in response to a specific task, then they would be susceptible to influence by the idiosyncrasies of a presentation format.

Although the literature has focused primarily on information content, some studies have examined the importance of presentation format and its linkages to decision-making performance. The growing number of studies examining presentation format provide an indication of the importance of presentation format on decision-making (Vessey and Galletta, 1991; Ramarapu et al., 1997; Frownfelter-Lohrke, 1998; Dull and Tegarden, 1999; Hodge, 2001; Dull et al., 2003; Hodge et al., 2004; Hodge and Pronk, 2006).

The resurgence of presentation format studies in the accounting context derives from: (i) the progression of annual reports from the traditional hard copy to digital reporting environment (Dull et al., 2003); (ii) theories combining psychology and economics that allowed researchers to specify more clearly the mechanisms affecting decision-makers' behaviour (Libby et al., 2002); (iii) the demand for further research in order to provide a theory of how different presentation formats affect decision-making performance (Maines, 1995); and, (iv) the increasing demand of various users' information needs, which has motivated the research on the effectiveness of presentation format as a tool of disseminating financial information (Smith, 2003).

3. The effect of presentation format on decision-makers' behaviour

Presentation format may influence decision-making, with both positive and negative consequences. It may affect decision-makers' behaviour in many ways such as search behaviour, affective responses, decision accuracy, cognitive effort, functional fixation and satisfaction, persuasion and recall. This section discusses the primary findings from the presentation format literature and their impact on the decision-makers' behaviour. Figure 1 presents an overview that shows the effect of presentation format on decision-makers' behaviour.

<INSERT FIGURE 1 ABOUT HERE>

3.1 Search behaviour

Search behaviour refers to how decision-makers acquire information (Hunton and McEwen, 1997)). Search behaviour is often assessed by the way decision-makers acquire information (Bouwman et al., 1987; Hunton and McEwen, 1997) and the amount of information acquired (Painton and Gentry, 1985). Several studies have examined presentation format effect on search behaviour (e.g Watson and Driver, 1983; Painton and Gentry, 1985; Bouwman et al., 1987; Purvis, 1989). These studies generally used a similar methodology which involved using various types of presentation formats with students as their participants. The results show that presentation format affects decision-makers' search behaviour by influencing the amount of information acquired and the manner in which the information is acquired.

Another body of literature used presentation format as an instrument to examine decision-makers' search behaviour (Bouwman et al., 1987; Hunton and McEwen, 1997; Nouri and Douglas-Clinton, 2006). This group of studies generally found that search behaviour differs between professional decision-makers and non-professional decision-makers. This is attributed to their different skills and knowledge (Hirst and Hopkins, 1998). Both professional and non-professional decision-makers tend to follow specific approaches (Vera-Munoz et al., 2002). Professional decision-makers use a direct search method, in which they move from one page to another in the financial statements to search and collect related information (Bouwman et al., 1987). Non-professional decision-makers use a sequential search method, in

which they read the reports in the order reported (Bouwman, 1982). These studies found that the direct search method results in more accurate answers to computational questions and greater consensus in the credit decision (Klammer and Reed, 1990 and the investment decision (Dull et al., 2003; Hodge et al., 2004).

Consequently, each type of search behaviour has negative implications (Hirst and Hopkins (1998); Hodge et al., 2004). Although directive search potentially reduces decision-makers' cognitive effort, such behaviour may cause them to ignore a related information item appearing in other parts of a corporate report (Hirst and Hopkins, 1998). For example, Hirst and Hopkins (1998) found that their analysts appeared to ignore information they believed *ex ante* would not provide important information. On the other hand, decision-makers adopting sequential search may incur higher cognitive effort. Such behaviour would lead them to reach cognitive overload and most likely discount an information item that is placed at the end of a financial report (Hodge et al., 2004).

3.2 Affective responses

Affective response refers to the change in the participant's mood or decision after being influence from certain objects (Rose, 2002). Affective response is assessed by providing participants with a few types of presentation formats or scenarios and then observing the change in their mood or decision. In general, presentation format studies suggest that presentation format affects affective responses (Martin et al., 1993; Kida and Smith, 1995; Hirt et al., 1997; Kida et al., 1998; Rose, 2002). For example, Martin et al. (1993) exposed their participants to movie clips to induce a happy or sad mood prior to completion of a task. They found multimedia presentations significantly altered subjects' moods in the expected direction. Similar results were found by Hirt et al. (1997) where decision-makers who were exposed to a presentation prior to task completion became happier or sadder, and this emotional state affected their strategies or effort in completing the task.

Kida and Smith's (1995) study suggests that affective responses to the presentation of information could help construct and combine memory traces. Ultimate decisions are framed according to the recall of affective responses, and comparisons between decision alternatives may often be made between differences in the recall of affective responses rather than accurately recalled information (Rose, 2002). Kida et al. (1998) found that participants made their decisions largely on affective responses to the presentation format. In the investment decision context, decision-makers tend to base decisions on their affective responses upon relying on the presentation format, and their resulting decisions favour investments that are associated with a positive response (Rose, 2002).

The finding that presentation format has an effect on affective responses could be attributed to the presentation format peripheral cues which influence memory patterns and investment decisions (Rose, 2002), as well as information related to other persons involved in the decision scenario (Kida et al., 2001).

3.3 Decision accuracy

Decision accuracy refers to the ability of a strategy to produce an accurate outcome (Ashton, 1991). Decision accuracy is often measured by comparing the outcome of the criterion with a benchmark (Frownfelter-Lohrke, 1998). Presentation format studies often focus on decision accuracy because one of the major concerns in users' performance is whether an appropriate decision could be made.

One body of literature suggests that the use of an appropriate presentation format increases decision accuracy (Stock and Watson, 1984; Dickson et al., 1986; Iselin, 1988; Vessey, 1991; Mackay and Villareal, 1987; Hard and Vanecek, 1991; Stone and Schkade, 1991; Anderson and Kaplan, 1992; Ramarapu et al., 1997; Frownfelter-Lohrke, 1998; Almer et al., 2003; Hodge et al., 2004; Ghani et al., 2007). Another body of literature suggests that presentation format does not affect decision accuracy regardless of whether the decision-makers rely on an appropriate presentation format (Bricker and Nehmer, 1995; Dull et al., 2003; So and Smith, 2003).

The link of a dependent relationship between decision accuracy and presentation format is affected by factors such as matching of the presentation format and task (Vessey, 1991; Umanath and Vessey, 1994), and the idiosyncrasies of the presentation format (Moriarity, 1979; Hard and Vanecek, 1991; Frownfelter-Lohrke, 1998). However, some studies suggest that the degree of information processing is the determinant of decision accuracy (Bricker and Nehmer, 1995; So and Smith, 2003). Degree of information processing refers to the amount of relevant information that decision-makers access or refer to before arriving at a decision outcome (Cloyd, 1995). It is argued that if a higher degree of relevant information is processed it should lead to higher decision accuracy (Beach and Mitchell, 1978; Payne, 1982; Davis, 1989). For example, Bricker and Nehmer (1995) suggest that presentation format is not the main contributor to decision accuracy. They argue that the contributor is the degree of information processing. However, their findings are debatable as a higher degree of information processing could indicate a reliance on an inappropriate presentation format (Vessey, 1991; Vessey, 1994), and consequently lead to information overload (Benbasat and Schroeder, 1977).

3.4 Cognitive effort

Cognitive effort refers to the total expenditure of cognitive resources required to complete a task (Frownfelter-Lohrke, 1998)). Cognitive effort is often measured by total decision time or total number of cognitive operations (Kleimuntz and Schkade, 1993; Ramarapu et al., 1997; Dull et al., 2003). Presentation format studies focus on cognitive effort because decision-makers tend to find ways to reduce their cognitive effort (Beach and Mitchell, 1978)). They often rely on perceptual, i.e., perceived, processes which consume less time (Coury and Bouletter, 1992; Vessey, 1994). Coury and Bouletter (1992) found that decision-makers tend to rely on any perceptual cues that are available in the data when time is a constraint.

In general, studies have found that presentation format does influence cognitive effort (Schwartz and Howell, 1985; Benbasat and Dexter, 1985; Jarvenpaa, 1989; Stone and Schkade, 1991; Coury and Bouletter, 1992; Bricker and Nehmer, 1995; Tuttle and Kershaw, 1998). However, other studies have found that presentation format does not affect cognitive effort (Benbasat and Dexter, 1985; Dickson et al., 1986; Jarvenpaa, 1989; Dull et al., 2003; Ghani et al., 2007). For example, Dull et al. (2003) examined the effect of different presentation formats (hyperlinked versus non-hyperlinked) on decision-makers' judgments in terms of decisions, predictions, and the amount of information accessed. The researchers also examined the amount of time participants took to make decisions. In relation to the time taken, Dull et al. (2003) found a significant difference in the impact of the presentation format on time used, although the effect was only demonstrable for participants assessing small firms. They found no significant difference for those participants assessing large firms.

A review of the literature supports the alternative body of work. For example, Benbasat and Dexter (1985) examine the influence of differential presentation formats on decision-making performance. They found a tabular format leads to faster decision-making compared to a graphical format, but graphical formats outperformed tabular when time constraint was low. Tuttle and Kershaw (1998) found that using a tabular format increases speed compared to a graphical format, but in Bricker and Nehmer (1995) graphical formats outperformed tabular.

3.5 Functional Fixation

Presentation format studies have examined the effect of presentation format on functional fixation (Hodge et al., 2002 ; 2004; Ghani et al., 2007; 2008). Functional fixation refers to a person attaches a meaning to a title or an object and is unable to see the alternative meanings or uses. Functional fixation exists when decision-makers fail to adjust for differences arising from the adoption of different accounting methods (Libby et al., 2002). Most of the studies found the existence of functional fixation in situations where firms are given alternatives in placing an information item in the financial statement (that is recognised in the body of the financial statement or alternatively disclosed in the notes to the accounts).

Recent studies propose potential solutions to alleviate the effect of functional fixation in recognition versus disclosure situations. These studies use external and internal inputs such as presentation format and learning to alleviate functional fixation in decision-makers' cognitive processing (Luft and Shields, 2001; Hodge et al., 2002; 2004; Ghani et al., 2008). Results of the studies on functional fixation in the presentation format literature are mixed. Hodge et al. (2002; 2004) found presentation format to be a potential solution for functional fixation. On the other hand, a study by Ghani et al. (2008) failed to provide evidence that presentation format could alleviate functional fixation in an investment decision task.

3.6 Satisfaction, persuasion and recall

Presentation format studies have examined the effect of presentation format on satisfaction, persuasion and recall (Umanath et al., 1988; Ottinger, 1993; Butler and Mautz, 1996; Hopwood, 1996; Clements and Wolfe, 1998; 2000). Satisfaction is measured by the level of fulfilment upon relying on the presentation format (Ottinger, 1993). Persuasion is measured by a change of attitude toward an object (Clements and Wolfe, 1998). Recall is measured by users' ability to remember what has been viewed during the presentation (Metcalfe et al., 1981). These variables were examined because users' acceptance of an object could be influenced by the level of satisfaction, the degree of influence and the ability of the object to improve recall (Metcalfe et al., 1981).

In general, these studies found features of presentation formats could influence the level of viewer satisfaction (Ottinger, 1993; Butler and Mautz, 199). Ottinger (1993), who examined satisfaction among participants on two presentation formats, found participants viewing multimedia kiosk presentations were significantly more satisfied than subjects who viewed a printed brochure. Similar results were found in Butler and Mautz (1996) and Clements and Wolfe (1998). These studies implied that users' satisfaction depends highly on presentation format, particularly the ability to entertain users.

Studies have also found that presentation format could influence persuasion (Ottinger, 1993; Hopwood, 1996; Clements and Wolfe, 2000). For example, Ottinger (1993) found a multimedia kiosk presentation format had a more positive effect on attitude change as opposed to a printed brochure. Similar results appeared in Clements and Wolfe's (2000)

study. However, Clements and Wolfe (1998) did not find any significant difference in persuasion between multimedia presentation format and printed presentation format.

Similarly, studies have found that presentation format affects recall (Metcalfe et al., 1981; Umanath et al., 1990; Clements and Wolfe, 1998; Umanath et al., 1998; Hodge et al., 2004; Nouri and Douglas Clinton, 2006). The results of such studies are consistent. Presentation format has different effects on recall. For example, Umanath and Scarnell (1998) found graphical presentation enhances recall when the task possesses a spatial format. Similarly, Clements and Wolfe (1998) found a hardcopy presentation format gave greater recall to participants, although they found multimedia more entertaining.

In summary, the presentation format literature has examined decision-makers' behaviour in many ways. An observation of the studies suggests that the features of presentation format play a role in influencing decision-makers' behaviour. Another observation is that the effect of presentation format also depends on the tasks to be performed and the decision-makers' characteristics, such as working experience. However, the effect of presentation format on decision-makers' behaviour can only be materialised provided that the presentation format is relied upon.

4. Reliance on presentation format

Even though a technology may have a higher capability to assist decision-makers in their tasks, there is a tendency for decision-makers to avoid relying on the technology (such as presentation format) (Rose, 2002). An increase in the reliance on a presentation format generally could lead to an improvement in decision-making provided all relevant information is included (Robert, 2002). The information system literature has identified few factors that affect reliance (Rose, 2002). For example, familiarity with a technology would encourage reliance on it (Brown and Eining, 1996; Whitecotton and Butler, 1998). Decision framing does not affect reliance (Brown and Jones, 1998). Decision-makers' confidence with the technology may also influence reliance (Arnold and Sutton, 1997). One possible factor that affects reliance on a technology is decision-makers' perceptions, as negative perceptions are likely to affect reliance on the technology (Davis, 1989).

Several studies have investigated whether work experience affects reliance on a technology. The results are mixed. A few studies found that work experience affects reliance on a technology. Others do not. For example, Whitecotton (1996) studied the effect of working experience on reliance on a technology and found experience to have no effect. Other studies found more experienced decision-makers would use and rely on a technology compared to less experienced decision-makers (Kachelmeier and Messier, 1990; Abdolmohammadi, 1992). Arkes et al. (1986) found that experienced users performed worse than moderate knowledge users when relying on a presentation format.

Another body of literature suggests that familiarity with a technology also affects users' reliance on it. Mackay and Elam (1992) and Mackay et al. (1992) suggest that a high level of working experience results in better performance when accompanied by a high level of familiarity with the technology. Arkes et al.'s (1986) study found a contrasting result. They found that participants with more knowledge but less familiarity with a technology performed worse when relying on the technology than participants with a moderate level of knowledge. This is consistent with the behavioural decision literature which suggests that the performance of users with a higher level knowledge will be obstructed when relying on a technology which they are not familiar with. For those users with a moderate level of knowledge, the unfamiliarity of using a particular technology would not be affected since they would still need to go through a more detailed process compared to the professional users (Vera-Munoz et al., 2002).

The different results of these studies could be attributed to the different type of decision tasks in each study. These studies found that the type of decision task is one of the factors that is likely to have an effect on the use of a technology such as presentation format. Such studies are hampered by the lack of a usable taxanomy of decision task types and their characteristics. Secondly, the subjects used in these studies often differ in terms of knowledge and experience.

5. Theories offered in the presentation format literature

5.1 Bertin's Theory

Bertin's theory (1983) is a theory introduced in the presentation format literature concerning different forms of presentation formats. The theory relates to the process of obtaining information cues from a presentation format in order to answer questions, and focuses on determining the most appropriate presentation format for a given question.

According to Bertin, performance with a presentation format is a function of three factors: (i) the information set presented; (ii) the question to be answered; and, (iii) the presentation format. Bertin's theory also theorised that the most appropriate presentation format for a particular question is the one that minimises cognitive effort. Different forms of presentation make some aspects of the information displayed more apparent, and questions of different levels of complexity pertain to different characteristics or relationships within the information. Therefore, in sum, one presentation format cannot be said as a technology to generally solve an issue; rather certain presentation formats that can be used to achieve low cognitive effort in a specific task, may not be effective in a different task.

5.2 Cognitive Fit Theory

Vessey's (1991) cognitive fit theory is introduced in the "Graphical versus Tabular" literature which also supports the concept that the format of the information presented to decision-makers affects the outcome of their decisions. The cognitive fit model suggests that there are different types of problems, processes to solve the problems, and representations of the problems. If these three variables fit, then the model holds that decision quality should improve (Vessey, 1991). The transfer of financial information to a new form of presentation format could provide a better "fit" between financial information and its users

Cognitive fit theory states that humans are limited processors and therefore a more effective problem solving could result when the complexity in the task environment is reduced. Vessey (1991) proposes that mismatches between information format and the information-processing requirements of the task cause task complexity to increase, resulting in more difficult tasks. This theory theorised that the failure to match the presentation format to the task involved leads to the ineffective processing of information. Therefore, in sum, decision-making performance could only be achieved only when the presentation format fits the task to be performed.

5.3 Cost-Benefit Theory

Cost-benefit theory explains decision makers' choice among strategies in terms of cognitive trade-off between efforts required to employ the strategy and the accuracy of the resulting decision (Beach and Mitchell, 1978; Payne, 1982; Davis, 1989). Cost-benefit theory has been applied extensively to choice tasks. In presentation format literature, Cost-benefit theory implies that presentation format define a "cognitive incentive system" for decision makers because presentation format is one of the task variables that influence strategy change. Since both effort and accuracy associated with strategy may vary with changes in choice tasks, different strategies will provide the best trade-off in different situations.

Two cost-benefit dimensions related to decision makers' cognitive processing are (i) the cognitive effort required to use a strategy and (ii) the ability of a strategy to produce an accurate outcome (Kleinmuntz and Schkade, 1993). Effort reflects total expenditure of cognitive resources required to complete a task such as completion time. Accuracy measures compare the outcome of a criterion. These two dimensions were further categorized into two measures. The two measures are (i) objective measures for both effort and accuracy and (ii) subjective measures for both effort and accuracy (Kleinmuntz and Schkade, 1993). These measures have been used by a number of studies in the presentation format literature (e.g, Frownfelter-Lohrke, 1998; Ghani et al, 2007).

5.4 Dual Coding Theory

Paivo's (1986) Dual Coding theory is introduced in attempt to give equal weight to verbal and non-verbal processing. He states "Human cognition is unique in that it has become specialized for dealing simultaneously with language and with non-verbal objects and events. He further postulated that images were more likely to be evoked by pictures than words and with concrete rather than with abstract words. Mayer and Anderson (1991) supported this theory by exposing users to visual and verbal explanation simultaneously was more effective in promoting creative problem solving than by giving separate verbal and visual explanation.

The theory assumes that there are two cognitive subsystems, one specialized for the representation and processing of non-verbal objects or events (imagery) and the other specialized for dealing with language. Dual Coding theory identifies three types of processing: (i) representational, the direct activation of verbal or non-verbal representation, (ii) referential, the activation of the verbal system by the non-verbal system and vice versa and (iii) associating processing, the activation of representations within the same verbal or non-verbal system. A given task may require any or all of the three kinds of processing.

In accounting, Clements and Wolfe (1997; 2001) used this theory by analyzing the effect of multimedia on satisfaction, persuasion and recall. Their studies involved experimental design where subjects were entertained by the multimedia annual report and hard copy annual report and found that subjects were equally persuaded by both annual report formats but had significantly greater recall with the paper based annual report than with the multimedia annual report. In other words, subjects with strong verbal subsystem who received a paper based report recall more than multimedia report users regardless of presentation preference.

5.5 Proximity Compatibility Theory

This theory suggests set of guidelines on which to base a visual display design. It is a series of studies concerning the appropriateness of graphical display, task type, and the integration of dimensions. In this view, an optimal display should be both physically and perceptually proximate and compatible. Proximity is defined in terms of sharing of features between displayed attributes such as closeness in space, identity in colour or similarity of semantic meaning (Carswell and Wickens, 1987).

Not many studies have applied this theory in the presentation format and accounting literature, mainly because it focuses more on computerized information processing. Dull and Tegarden (1999) investigates the relationship between three visual representations (two dimensional, three dimensional fixed and three dimensional rotatable) and subjects' ability to make predictions based on the data. Amer (1991) examines the effect of varied types of decision task and displays of multi-cue financial information on decision making performance and user perceptions about display due.

6. Future research opportunities

Presentation format literature is particularly importance and relevance to accounting. In particularly, as new technologies available to present financial information are emerging, there is a need to refocus researching from examining information content to the way information is being presented in the accounting paradigm. This is consistent to the notation by Dull et al. (2003, p 185), "while much research has been conducted concerning accounting content of financial statements, limited research has been conducted in the area of presentation. One reason the research has been limited is because many of the technologies currently available to present financial statements were not available until recently".

Few research opportunities in the area of presentation format could be identified to enhance and evolve the presentation format literature in the accounting paradigm. Firstly, Ghani et al. (2007) have provided preliminary evidence that presentation format affects effectiveness but no evidence that presentation format affects efficiency. Perhaps more research could be conducted to examine the impact of presentation format on the efficiency and effectiveness of decision-makers' decision quality in order to provide empirical evidence on the effect of presentation format on decision quality. The need of such research has also been identified by other academics such as Abdolmohammadi et al. (2002) and Debreceny and Gray (2001). Examining such an issue would also address the limitations in previous studies which have focused on the smaller scale presentation format (such as tabular and graphical) that represents only a small section of the financial report.

Studies in the information system literature have suggested that the success of a technology (such as presentation format) is likely to depend on internal factors (such as perception), which is a primary input to decision-making (Beach and Mitchell, 1978; Abelson and Levi, 1985; Davis, 1989; Adams et al., 1992). These studies propose that users often share similar views on the usefulness and ease of use of technologies that have a similar function and that acceptance of a technology is highly dependent on their perceptions of that technology (Adams et al., 1992; Beach and Mitchell, 1978; Davis, 1989).

In accounting and presentation format literatures, perception has not been extensively explored. Ghani et al. (2007) attempted to examine this issue using instrument created by Davis (1989) used to measure perceived usefulness and ease of use and found similar results to the ones in the information systems literature. They also found some evidence that these perceptions may not necessary be similar to their actual performance. Apart from Ghani et al.'s study, there is limited research to support their findings in the presentation format literature. Exploring this area would enhance the understanding of users' perceptions of presentation formats.

Thirdly, Ghani et al. (2007; 2008) examined whether presentation format would be able to alleviate functional fixation caused by recognition versus disclosure. Using experimental design on public accountants in the context of a less eminent item (Accounting for investment property), their study could not provide evidence that presentation format could alleviate functional fixation in an investment decision task. Their results are in contrast to Hodge et al. (2002; 2004) in which Hodge et al. used experiment design using students as proxy in a more debated item (Stock option compensation). Further research could be conducted to provide a conclusive evidence on the role of presentation format in alleviating functional fixation since this issue raises the interesting question of whether similar results would emerge in different settings.

Finally, most of the studies in the presentation format literature used a homogenous group and further, students were used as proxy to actual decision-makers in their experimental settings. Additionally, given the heterogeneity in decision-makers, the use of any one group (such as public accountants) may limit the ability to generalise the results to other decision-makers. Because of the different constraints (time and monetary), incentives and decision contexts experienced by various decision-makers, using other types of decision makers may assist in enhancing the understanding of other decision makers such as the financial analysts and investment brokers.

In summary, there are a lot of opportunities in researching the area of presentation format in the accounting paradigm. The fact that limited research has been conducted in this area provides an indication that it is important to continue working on this area in order to enhance our understanding.

References

Abdolmohammadi, M.J. (1992). "Decision aids for error quantifications in attribute sampling: Circumvention, efficiency and experience effects", Advances in Accounting 10, pp 1-17.

Abdolmohammadi, M.J; Harris, J and Smith, K. (2002). "Government financial reporting on the internet: The potential revolutionary effects of XBRL", Journal of Government Financial Management, Summer, pp 25-31.

Abelson, R.P. and Levi, A. (1985). "Decision Making and Decision Theory", Handbook of Social Psychology, New York, pp 231-309.

Adams, D.A; Nelson, R.R and Todd, P.A. (1992). "Perceived usefulness, ease of use and usage of information technology: A replication", MIS Quarterly, June, pp 227-247.

Almer, E.D.; Hopper, J.R and Kaplan, S.E. (2003). "A research tool to increase attention to experimental materials: Manipulating presentation format", Journal of Business and Psychology 17 (3), pp 405-417.

Amer, T. (1991), "An experimental investigation of multi-cue financial information display and decision making", Journal of Information Systems (Fall), pp 19-24.

Anderson, J.C. and Kaplan, S.E (1992). "An investigation of the effect of presentation format on auditors' non investigation region judgments", Advances in Accounting Information Systems 1, pp 71-88.

Arkes, H.R.; Dawes, R.M and Christensen, C. (1986). "Factors influencing the use of a decision rule in a probabilistic task", Organisational Behavior and Human Decision Processing 37, pp 93-110.

Arnold, V. and Sutton, S. (1997). "Opportunities for research on the use of technology to mitigate environmental influences on individual judgments", Advances in Accounting Information Systems, 5, pp 281-298.

Ashton, R..H. (1981). "A descriptive study of information evaluation", Journal of Accounting Research, (Spring), pp 42-61.

Bamber, M.E. (1993). "Opportunities in behavioural accounting research", Behavioural Research in Accounting 5, pp 1-29.

Bazerman, M.H. (1994). "Judgment in managerial decision making", Third Edition, John Wiley and Sons, Inc, New York.

Beach, L.R. and Mitchell, T.R. (1978). "A contingency model for the selection of decision strategies", Academy of Management Review 3, pp 439-449.

Benbasat, Izak and Albert Dexter (1985). "An experimental evaluation of graphical and color-enhances information presentation", Management Science, 31(11), pp 1348-1364.

Benbasat, Izak and Roger G. Schroder (1977), "An experimental investigation of some MIS design variables", MIS Quarterly 1(1), pp 233-240.

Bertin, J. (1983). "The semiology of graphics", University Wisconsin Press: Madison Wisconsin

Bonner, S.E. (1999). "Judgment and decision making research in accounting", Accounting Horizons, 13 (4), pp 385-398.

Bouwman, M.J. (1982). "The use of accounting information: Professional versus novice behaviour", Decision Making: An Interdisciplinary Inquiry, D, Boston MA: Kent, pp 134-167.

Bouwman, M.J.; Frishkoff, P. and Frishkoff, P.A. (1987). "How do financial analysts make decisions?. A process model of the screening decision", Accounting, Organisations and Society, 12, 1, pp 1-29.

Bricker, R. and Nehmer, R. (1995). "Information presentation format, degree of information processing and decision quality", Advances in Accounting Information Systems 3, pp 3-29.

Brown, D. and Eining, M.M. (1996). "The Role of Decision Aids in Accounting: A Synthesis of Prior Research", Advances in Accounting Information Systems (4), pp 305-332.

Brown, D. and Jones, D.R. (1998). "Factors that influence reliance on decision aids: A model and an experiment", Journal of Information Systems, 12 (2), pp 75-94.

Butler, J.B. and Mautz, D.R. (1996). "Multimedia presentations and learning: A laboratory experiment", Issues in Accounting Education, 11(2), pp 259-281.

Carswell, M.C. and Wickens, C.D. (1987). "Information integration and the object display: An interaction of task demands and display superiority", Ergonomics, (30), pp 511-527.

Chervany, N.L. and Dickson, G.W. (1974), "Experimental evaluation of information overload in a production environment", Management Science, 20(10), pp 1335-1344.

Chi, M.T.H; Feltovich, P. and Glaser, R. (1981). "Categorization and representation of physics problems of professionals and novices", Cognitive Sciences, 5(2), pp 121-152.

Clements, C.E. and Wolfe, W. (1998). "An experimental analysis of multimedia annual reports on non-professional users", Advances in Accounting Information Systems 5, pp 105-136.

Clements, C.E. and Wolfe, C. (2000). "Reporting financial results with the video medium: an experimental analysis",. Journal of Information Systems. (14), pp 79-94.

Cloyd, B.C. (1995). "Prior knowledge, information search behaviour and performance in tax research tasks", The Journal of American Taxation Association, 17, Supplement, pp 82-107.

Coury, B.G. and Bouletter, M.D. (1992). "Time stress and the processing of visual displays", Human Factors, 34, pp 707-725.

Davis, F.D (1989). "Perceived usefulness, perceived ease of use and user acceptance of information technology", MIS Quarterly, September, pp 319-340.

Davis, F.D.; Bagozzi, R. and Warshaw, P. (1989). "User acceptance of computer technology: A comparison between two theoretical models", Management Science, August, pp 982-1003.

Debreceny, R and Gray, G.L (2001). "The Production and Use of Semantically Rich Accounting Reports on the Internet: XML and XBRL", International Journal of Accounting Information Systems, 2 (1), pp 47-54.

DeSanctis, G. and Jarvenpaa, S.L. (1989). "Graphical presentation of accounting data for financial forecasting: An experimental investigation", Accounting, Organisations and Society, 14(6), pp 509-525.

Dhaliwal, D.; Subramanyman,, K.R and Trezevant, R. (1999). "Is comprehensive income superior to net income as a measure of firm performance?", Journal of Accounting and Economics 26(1), pp 44-67.

Dickson, G.W.; DeSanctis, G. and McBride, D.J. (1986). "Understanding the effectiveness of computer graphics for decision support: A cumulative experimental approach", Communications of the ACM, 29(1), pp 40-47.

Dillard, J.F. (1984). "Cognitive science and decision making research in accounting", Accounting, Organizations and Society 9(3-4), pp 343-354.

Dull, R.B. and Tegarden, D.P. (1999). "A comparison of three visual representations of complex multidimensional accounting information", Journal of Information Systems 13(2), pp 117-132.

Dull, R.B; Graham, A.W and Baldwin, A.A. (2003). "Web-based Financial Statements: Hyperlinks to Footnotes and their Effect on Decisions", International Journal of Accounting Information Systems, 4, pp 185-203.

Dyckman, T.R. (1964). "On the investment decision", The Accounting Review, 4, pp 285-296.

Ebbesen, E.B. and Konecni, V.J. (1980). "On the external validity of decision-making research: What do we know about decisions in the real world?", In T.S. Wallsten (Ed.) Cognitive Processes in Choice and Decision Behavior. Hillsdale NJ L. Erlbaum Associates, pp 21-45.

Fischoff, B; Slovic, P. and Lichtenstein, S. (1978). "Fault trees: Sensitivity of estimated failure probabilities to problem representation", Journal of Experimental Psychology: Human Perception and Performance, 4(May), pp 330-344.

Frownfelter-Lohrke, C. (1998). "The effects of differing presentations of general purpose financial statements on users' decisions", Journal of Information Systems, 12(2), pp 99-107.

Ghani, E.K; Laswad, F. and Tooley, S. (2007). "Users' perceived usefulness and ease of use of digital presentation formats", Paper presented at the APIRA 2007 Conference, Auckland July.

Ghani, E.K; Laswad, F. and Tooley, S. (2007). "The effect of digital presentation format and recognition versus disclosure in information processing stages", Paper presented at the Asian Pacific Conference on International Accounting Issues, Malaysia, November.

Ghani, E.K; Laswad, F. and Tooley, S. (2008). "Do digital reporting formats assist professional users in overcoming functional fixation in recognition vs. disclosure?", Paper presented at the BAA 2008 Conference, Blackpool, April.

Hackenbrack, K. (1992). "Implications of seemingly irrelevant evidence in audit judgment", Journal of Accounting Research, 30(Spring), pp 126-136.

Hard, N.J. and Vanecek, M.T. (1991). "The implications of tasks and format on the use of financial information", Journal of Information Systems (Fall), pp 35-49.

Hirt, E.R; Levine, G.M; McDonald, H.E; Melton, R.J and Martin, L.L. (1997). "The role of mood in quantitative and qualitative aspects of performance: Single or multiple mechanisms?",.Journal of Experimental Social Psychology, 33, pp 602-629.

Hirst, E.D and Hopkins, P.E (1998). "Comprehensive income reporting and analysts' valuation judgments", Journal of Accounting Research, 36 (Supplement), pp 47-75.

Hodge, F.D. (2001). "Hyperlinking un-audited information to audited financial statements: Effects on investor judgments", The Accounting Review 76(10), pp 675-691.

Hodge, F.D.; Kennedy, J.J and Maines, L.A. (2004). "Does search facilitating technology improve the transparency of financial reporting?", The Accounting Review 79 (3), pp 687-703.

Hodge, F.D. and Pronk, M. (2006). "The impact of professionalise and investment familiarity on investors' use of online financial reporting information", Journal of Accounting, Auditing and Finance, pp 267-292.

Hoffman, V.B. and Patton, J.M. (1997). "Accountability, the dilution effect and conservatism in auditors' fraud jusgments", Journal of Accounting Research, 35(Autumn), pp 227-238.

Hogarth, R. (1980). Judgment and Choice, Chichester, UK, John Wiley & Sons.

Hopkins, P.E. (1996). "The effect of financial statement classification of hybrid financial instrumentation on financial analysts' stock price judgement", Journal of Accounting Research 34 (Supplementary), pp 33-50.

Hopwood, A.G. (1996). "Looking across rather than up and down: On the need to explore the lateral processing of information", Accounting, Organisations and Society 21(6), pp 589-590.

Hunton, J.E. and McEwen, R.A. (1997). "An assessment of the relation between analysts' earnings forecast accuracy, motivational incentives, and cognitive limitation search strategy", The Accounting Review 72(10), pp 497-516.

Iselin, E.R. (1988). "The effects of information load and information diversity on decision quality in a structured decision task", Accounting, Organizations and Society 13(2), pp 147-164.

Kalcelmeier, S.J. and Messiar, W.F. (1990). "An investigation of the influence of a non-statistical decision aid on auditor sample size decisions", The Accounting Review 65, pp 209-226.

Kida, T. and Smith, J.F. (1995). "The encoding and retrieval of numerical data for decision making in accounting contexts: Model development", Accounting, Organisations and Society, 20(7/8), pp 585-610.

Kida, T.; Smith, J.F and Maletta, M. (1998). "The effects of encoded memory traces for numerical data on accounting decision making", Accounting, Organisations and Society, 23(5), pp 585-610.

Klammer, T.P. and Reed, R. (1990). "Operating cashflows formats: Does format influence decisions?", Journal of Accounting and Public Policy (Fall), pp 217-235.

Kleinmuntz, D.N. and Schkade, D.A. (1993). "Information Displays and Decision Processes", American Psychology Society, 4(4), pp 221-227.

Libby, R. (1981). "Accounting and human information processing theory: Theory and applications", Englewood Cliffs, NJ: Prentice Hall.

Libby, R. and Lewis, B.L (1977). "Human information processing research in accounting: The start of the art", Accounting, Organizations and Society 2(3), pp 245-268.

Libby, R. and Lewis, B.L. (1982). "Human information processing research in accounting: The start of the art in 1982", Accounting, Organizations and Society 7(3), pp 231-285.

Libby, R.; Bloomfield, R and Nelson, M.W. (2002). "Experimental research in financial accounting", Accounting, Organisations and Society (27), pp 775-810.

Lipe, M.G. (1998). "Individual investors' risk judgment and investment decisions: The impact of accounting and market data", Accounting, Organisations and Society, 23(10), pp 625-640.

Luft, J.L. and Shields, M.C. (2001). "Why does fixation persist? Experimental evidence on the judgment performance effects of expensing intangibles", The Accounting Review, 76(4), pp 561-587.

Mackay, J.M. and Elam, J.J (1982), "A comparative study of how professionals and novices use a decision aid to solve problems in complex knowledge domains", Information Systems Research (June), pp 150-172.

Mackay, D.B and Villareal, A. (1987). "Performance differences in the use of graphic and tabular displays of multivariate data", Decision Sciences 18, pp 535-546.

Mackay, J.M.; Barr, S.H and Kletke, M.G. (1992). "An empirical investigation on the effects of decision aids on problem solving processes", Decision Sciences 23, pp 648-672.

Maines, L.A. (1995). "Judgment and decision making research in financial accounting: a review and analysis", Judgment and Decision Making Research in Accounting and Auditing, Cambridge University Press, pp 77-131.

Maines, L.A. and McDaniel, L.S. (2000). "Effects of comprehensive-income characteristics on nonprofessional investors' judgments: The role of financial statement presentation format", The Accounting Review 75 (2), pp 179-207.

Martin, L, Ward, D.; Achee, J and Wyer, R.S. (1993). "Mood as input: people have to interpret the motivational implications of their moods", Journal of Personality and Social Psychology 64(3), pp 317-326.

Mayer, R.E. and Anderson, R.B. (1992). "The instructive animation: helping students build connections between words and pictures in multimedia learning", Journal of Educational Psychology, 84(3), pp 444-452.

Metcalfe, J., Glavanov, D and Murdock, M. (1981). "Spatial and temporal processing in the auditory and visual modalities", Memory and Cognition, 9, pp 351-359.

Newell, A. and Simon, H.A. (1972). Human problem solving, Englewood Cliffs, N.J., Prentice Hall.

Nisbett, R.E.; Zukier, H. and Lemley, R.E. (1981). "The dilution effect: Nondiagnostic information weakens the implications of diagnostic information", Cognitive Psychology, 13(1), pp 248-277.

Nouri, H. and Douglas Clinton, B. (2006). "Gender, media presentation, and concern with the correct use of words—testing a three-way interaction", Accounting Education, 15(1), pp 61-72.

Ottinger, L.L. (1993). "Understanding the effectiveness of multimedia technology as a persuasive tool: An experimental investigation", PhD Dissertation, Texas A&M University, College Station.

Painton, S. and Gentry, J.W. (1985). "Another look at the impact of information presentation format, Journal of Consumer Research", 12(3), pp 240-244.

Payne, J.W (1982). "Contingent decision behaviour", Psychological Bulletin 92(2), pp 382-402.

Petroni, K.R. and Wahlen, J.M. (1995). "Fair values of equity and debt securities and share prices of property-liability insurers", The Journal of Risk and Insurance, 62 (12), pp 719-737.

Purvis, S.E.C. (1989). "The effect of audit documentation format on data collection", Accounting, Organisations and Society, 14(5-6), pp 551-563.

Ramarapu, N.K; Frolick, M.N.; Wilkes, R.B. and Wetherbe, J.C (1997). "The emergence of hypertext and problem solving: An experimental investigation of assessing and using information from linear versus nonlinear systems", Decision Sciences, 28(4): pp 825-849.

Roberts, F.D. (2002). "The effects of decision aid recommendation on users' cognitive processes, memory and judgments", Unpublished thesis, University of Tennessee.

Rogers, E.M. (1983). "Diffusion of Innovations", Free Press, New York.

Rohrmann, B. (1986). "Evaluating the usefulness of decision aids: A methodological perspective". In B. Brehmen, H. Jungermann, P Lourens & G. Sevon (Eds.), New Directions in Research on Decision Making . Amsterdam: North-Holland., pp 363-381.

Rose, J.M. (2002). "The effects of multimedia-induced affective states on recall and decision making by individual investors", International Journal of Accounting Information Systems, 2, pp 22-40.

Russo, E.J. (1977). "The value of unit price information", Journal of Marketing Research 14(5), pp 193-201.

Sabherwal, R. and Grover, V. (1989). "Computer support for strategic decision making processes: Review and analysis", Decision Sciences 20, pp 54-76.

Schick, A.G., Gordon, L.A and Haka, S. (1990). "Information overload: A temporal approach", Accounting, Organisations and Society, 15 (3), pp 199-220.

Shelton, S.W. (1999). "The effect of experience on the use of irrelevant evidence in auditor judgment", The Accounting Review, 74(April), pp 217-224.

Slovic, P.; Griffin, D and Tversky, A. (1990). "Compatibility effects in judgment and choice", University of Chicago Press, Chicago, pp 5-27.

So, S. and Smith, M. (2004). "Multivariate decision accuracy and the presentation of accounting information", Accounting Forum, 28(3), pp 283-306.

Stocks, M.H. and Tuttle, B. (1998). "An examination of information presentation effects on financial distress predictions", Advances in Accounting Information Systems 6, pp 107-128.

Stock, D. and Watson, C.J. (1984). "Human judgment accuracy, multidimensional graphics and human versus models", Journal of Accounting Research (Spring), pp 192-206.

Stone, N.D. and Schkade, D.A. (1991). "Numeric and linguistic information representation in multi-attribute choice", Organizations Behaviour and Human Decision Processes 49, pp 42-59.

Tuttle, B.M. and Kershaw, R. (1998), "Information presentation and judgment strategy from a cognitive fit perspective", Journal of Information Systems 12(1), pp 1-17.

Umanath, N.S.; Scarnell, R.W and Davis, G.B. (1988). "An experimental evaluation of the impact of data display format on recall performance", Communications of the ACM 31(5), pp 562-570.

Umanath, N.S.; Scarnell, R.W and Das, S.R (1990). "An examination of two screen/ report design variables in an information recall context", Decision Sciences, 21 (1), pp 216-240.

Vera-Munoz, S.C.; Kinney, W.R and Bonner, S.E. (2001). "The effects of domain experience and task presentation format on accountants' information relevance assurance", The Accounting Review, 76(3), pp 405-429.

Vessey, I. (1991). "Cognitive fit: A theory-based analysis of the graphs versus tables literature", Decision Sciences (Spring), pp 219-240.

Vessey, I. (1994). "The effect of information presentation on decision making: A cost-benefit analysis", Information and Management 27, 103-119.

Vessey, I. and Galletta, D (1991). "Cognitive fit: An empirical study of information acquisition", Information Systems Research, 2(1), pp 63-84.

Watson, C.J. and Driver, R.W. (1983). "The influence of computer graphics on the recall of information", MIS Quarterly 7(1), pp 45-53.

Whitecotton, S.M. (1996). "The effects of experience and confidence on decision aid reliance: A causal model", Behavioural Research in Accounting 8, pp 966-979.

Whitecotton, S.M. and Stephen B.A. (1998). "Influencing decision aid reliance through involvement in information choice", Behavioural Research in Accounting, 10 (Supplement), pp 182-206.

Wu, J. and Vasarhelyi, M. (2004). XBRL: A New Tool for Electronic Financial Reporting, Business Intelligence Techniques: A Perspective from Accounting and Finance, Springer, pp 73-92.

Yates, F. J. (1990). Judgment and decision making, Englewood Cliffs, NJ: Prentice Hall.

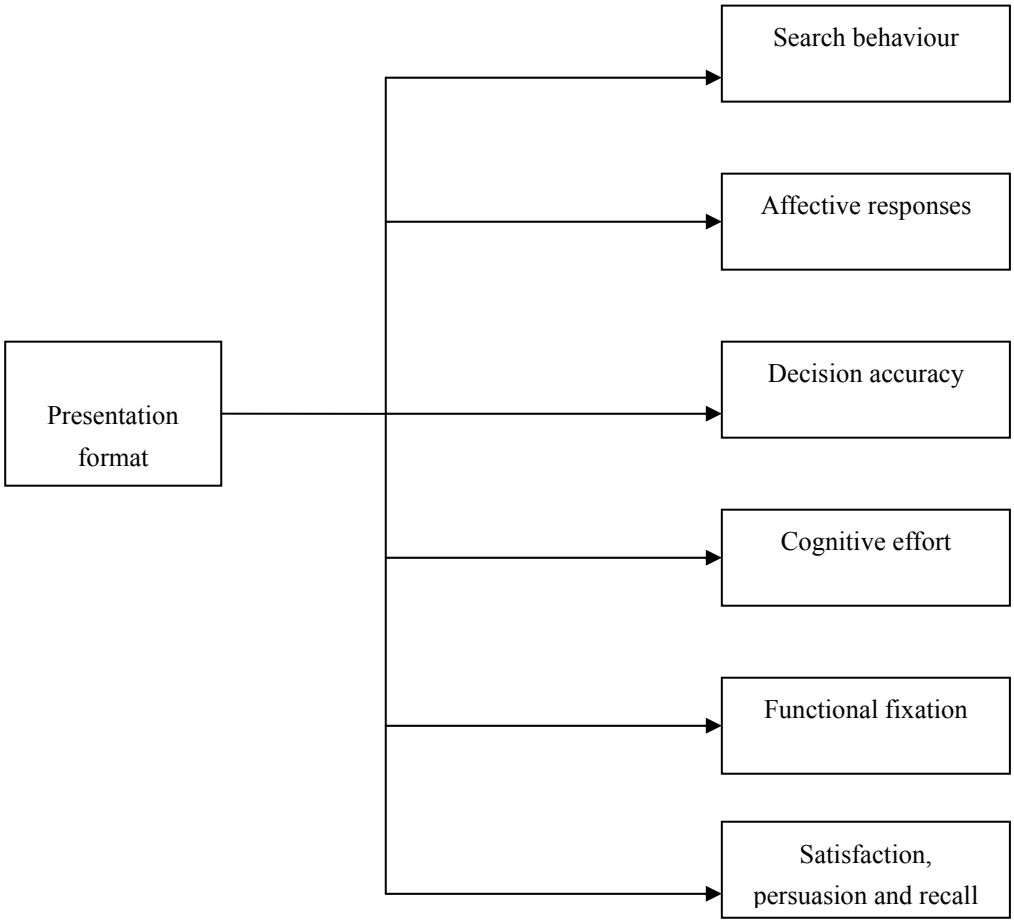

Figure 1. The effect of presentation format on decision-makers' behaviour